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VETERINARY SCIENCE ASSOCIATION
OF AMERICA

NOTES ON
DISEASES OF CATTLE
CAUSE, SYMPTOMS AND TREATMENT

BY

CHARLES J. KORINEK, V. S.

Graduate of the Ontario Veterinary College, in affiliation with the University of Toronto, Canada. Hon. Member of the Ontario Veterinary Medical Society. Ex. State Veterinarian for Oregon. Ex. President of the Oregon State Veterinary Medical Board of Examiners. Author of "The Veterinarian". Principal of the Veterinary Science Association of America. Sixteen years of Practical Experience as a Veterinary Surgeon.

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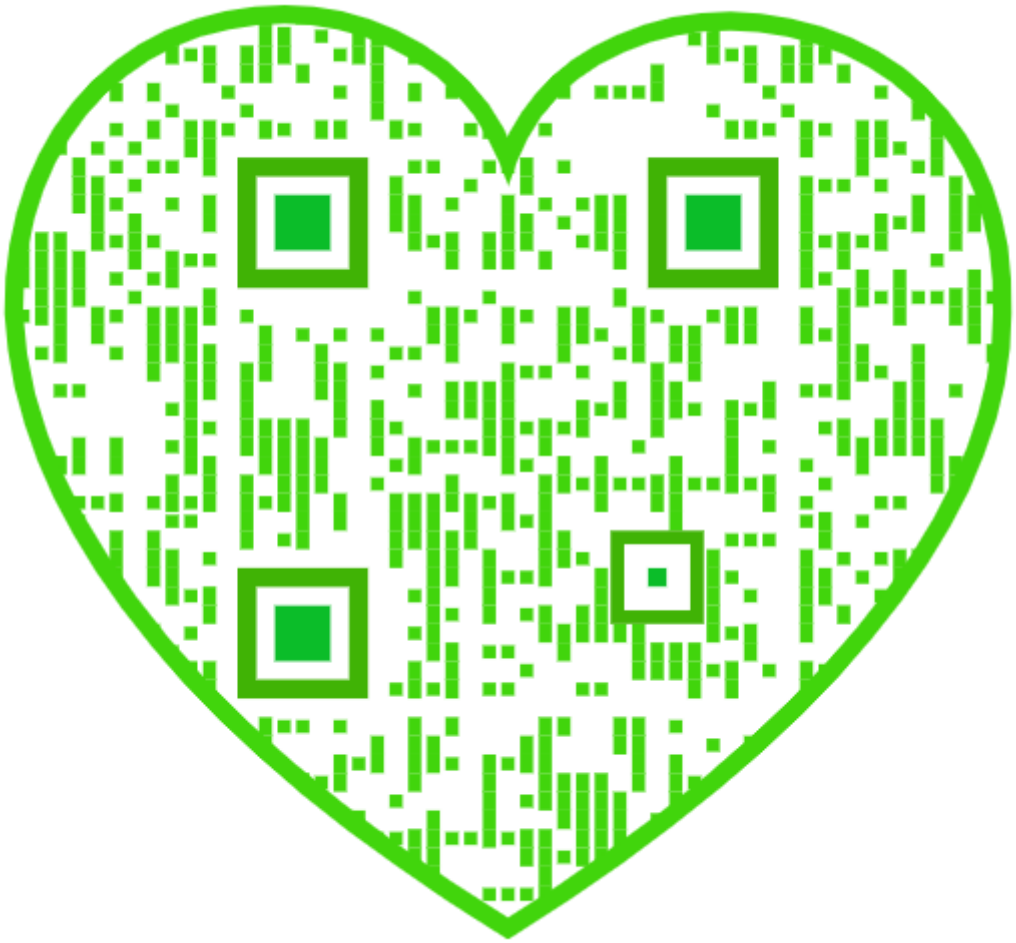

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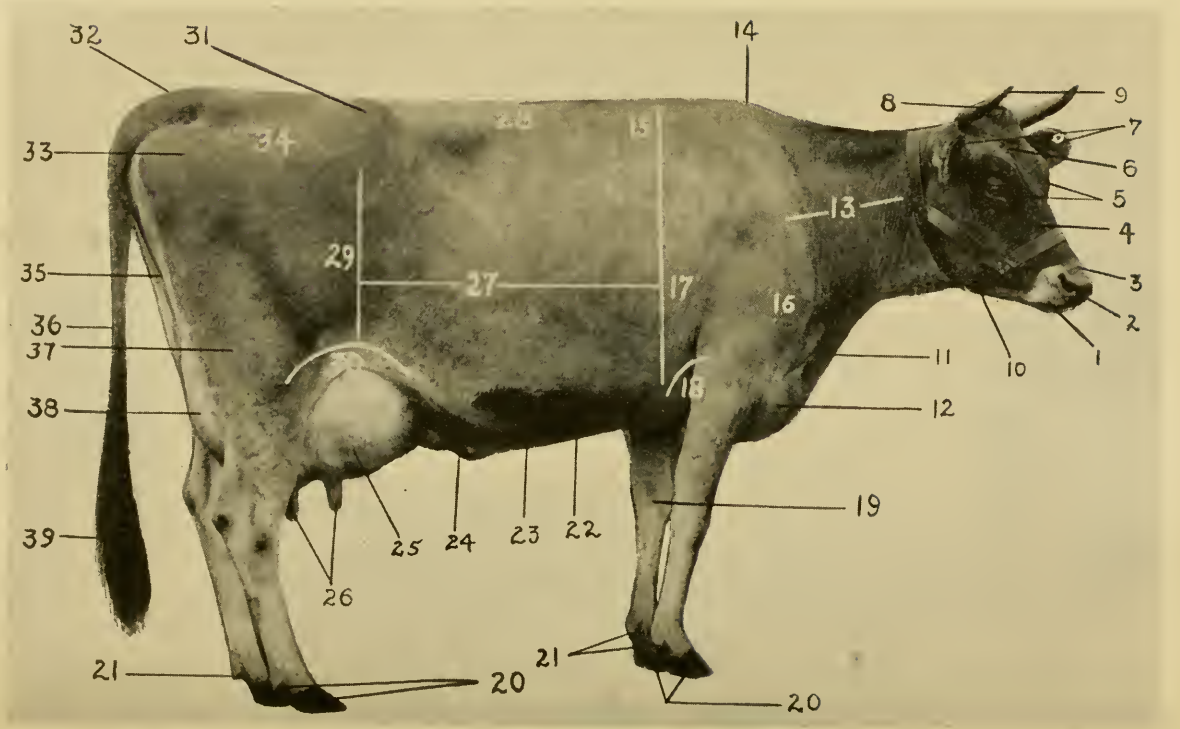
DISEASES OF CATTLE

CAUSE, SYMPTOMS AND TREATMENT



LOCATION OF PARTS OF DAIRY COW.

Location of Parts of Dairy Cow

1. Mouth.
2. Nostrils.
3. Muzzle.
4. Face.
5. Eyes.
6. Forehead.
7. Ears.
8. Poll.
9. Horns.
10. Jaws.
11. Dewlap.
12. Brisket.
13. Neck.
14. Withers.
15. Crops.
16. Shoulders.
17. Heart girth.
18. Fore flank.
19. Legs.
20. Feet.
21. Dew claws.
22. Belly.
23. Milk wells.
24. Milk veins.
25. Fore udder.
26. Teats.
27. Barrel or ribs.
28. Back.
29. Coupling.
30. Rear flanks.
31. Hook points.
32. Tail-head.
33. Pin bones or thurls.
34. Rump.
35. Escutcheon.
36. Tail.
37. Thighs.
38. Rear udder.
39. Switch.

PREFACE

In offering this work to the consideration of Students of Veterinary Science, as well as to the Veterinary Profession and others who are interested in the study and advancement of Veterinary Science, I feel it will suffice to say that I have endeavored to the best of my ability to render the matter contained in the following pages of as great *practical* value as possible, to present in the most plain and concise manner the nature, cause, symptoms and treatment of each disease in the form in which it most frequently occurs.

I wish to express a hope that this work will be favorably welcomed by all into whose hands it may find its way, more particularly by Students of Veterinary Science.

CHARLES J. KORINEK, V. S.

ABSCESSES.

Cause.—Bruises and injuries. They are also seen in complication with various other diseases, as Laryngitis, Pharyngitis, Tuberculosis, Lump Jaw, Blood Poison or Pyemia and Septicemia.

Symptoms.—Symptoms will vary according to the nature of the disease or injury. It may not be noticed at first, but upon careful examination swollen lines will be observed running from the point of swelling. In many cases a swelling is noticed which is hot, painful and throbbing, which enlarges rapidly in two or three days. The swelling and heat gradually disappear, but the Abscess continues to grow. The hair falls from the point of swelling and in a short time breaks and discharges pus. The cavity gradually fills up and heals by granulation.

Treatment.—In all cases hasten the ripening process as much as possible by applying hot water packs or hot bran, flaxseed or vegetable poultices. When opened, do not squeeze the Abscess to any extent, but press gently with clean hands or cloth to remove the core or clot. After this, just simply keep the Abscess open by washing with a three per cent Carbolic Acid solution, or Bichloride of Mercury, one in one thousand solution. Hyposulphite of Soda in ounce doses should be given two or three times a day in their drinking water. This will prevent the absorption of impurities from the abscess into the blood circulation.

ABORTION.

(*Non-Contagious*)

Cause.—Injuries from slipping or falling on icy roads, in box cars, and deep gutters; receiving blows on the body, keeping the animal in insanitary stables, eating poor food that may be irritating or poisonous, etc. In such cases, the cow's vitality is low so that the foetus dies and is expelled as a result. Losing large quantities of blood also produces Abortion, or a cow heavy with calf, on being placed in the same quarters with the cows that retain their afterbirth, is liable to abort. Intestinal worms, lung worms, liver flukes, causing an excessive drain upon the system or producing irritation of the digestive organs, in consequence of which cow gets very poor and emaciated. The above mentioned are perhaps the most common causes of "Non-Contagious Abortion."

Symptoms.—The cow is uneasy, becomes separated from the herd, the bag and vagina may be slightly inflamed and perhaps the latter discharging. If a cow heavy with calf craves the chewing and eating of dirt, rags, nails, etc., this is a sign of a lack of iron or phosphorus in her system and food containing these elements should be provided.

Preventive Treatment. — Provide clean, warm, comfortable quarters, good food, pure water to drink, do not subject her to any injuries, do not permit her coming in contact with cows retaining their afterbirth.

The above mentioned is very important, especially if the cows are valuable and a large yield of milk is expected. If they have worms, treat the same as under their special heading. If they have a loss of blood or a lack of mineral matter in their system, the following is very efficient: Pulv. Ferri Sulphate, four ounces; Pulv. Nux Vomica, two ounces; Pulv. Fenugreek Seed, four ounces. Mix and make into sixteen powders. Give

one powder two or three times a day in feed or place in a gelatin capsule and give with capsule gun.

AMOUROSIS OF THE EYE.

CAUSE.—Paralysis of the optic nerve.

SYMPTOMS.—Pupil fully dilated and of a glassy appearance. This condition is sometimes called "Glass Eye." The cow carries the head high and steps high. This condition is very uncommon in cattle.

TREATMENT.—Nothing can be done for a cow if she is blind, but this condition may be prevented if detected in its early stages of development by the proper feeding of nourishing food, good clean surroundings and the administration of nerve tonics, as Pulv. Nux Vomica, four ounces; Pulv. Gentian Root, four ounces; Potassium Iodide, three ounces. Make into twenty-four powders and place one powder in feed two or three times daily; or make into twenty-four capsules and give one capsule two or three times a day with capsule gun.

ANTHRAX.

Anthrax is a very contagious disease and is communicable to all warm blooded animals and man.

CAUSE.—Due to the presence of a germ called the Bacillus of Anthrax and is one of the oldest diseases attributed to germs. These Bacilli thrive in warm climates, although found in cold countries. The infection is carried to various parts of the world by box-cars, ships, hides, hoofs, horns, wool and hair taken from sick or dead animals affected with Anthrax. This, perhaps, is the most common method of spreading the disease.

SYMPTOMS.—Loss of appetite, grinding of teeth indicating great pain, trembling of the muscles, temperature elevated to 104° or 106° F., breathing very rapid, pulse fast and weak, hair rough. There are some cases where the animals are seized quickly with the

disease and die very suddenly. This form resembles apoplexy. Carbuncles or Abscesses are seen on the surface of the body in nearly all cases, also a bloody discharge from the mouth and nose. The animal may stamp the ground, rear in the air, run and finally go into convulsions and die. This is termed "the furious form of Anthrax."

Treatment.—Prevention is the most important. Fields or pastures that are infected with this disease should be burned every summer if possible, to destroy the germs. The animals that succumb to the disease should be buried deeply and quicklime thrown upon them, also any blood stains upon the ground should have a strong disinfectant thrown upon them. The hide of such an animal should not be used as the person removing it is likely to contract the same disease, especially if an abrasion is present on the hand, or such a hide or any portion thereof is likely to spread the infection after reaching the tannery, etc.

Medical Treatment or Serum Treatment.—This is the only thorough method of eradicating the disease, and when this disease once becomes prevalent in a locality all animals should be inoculated with vaccine.

BARRENNESS.

(*Failure to Breed*)

Cause.—Wasting or Atrophy, chronic inflammation of the mucous membrane lining the organs of generation, Whites, absence or excessive secretions of the organs of generation, contraction or displacement of the womb, horns being telescoped or twisted, cysts or growths on the ovaries, in-breeding or being a twin, are the predisposing causes of Barrenness.

Treatment.—Unsuccessful as a rule. Unless the cow is very valuable, treatment is not advisable. A careful examination, however, is recommended. If due to

contraction of the neck of the womb it can be readily dilated by the use of the hand, which should be greased with Carbolated Sweet Oil before attempting to perform the operation.

BLACK LEG.

(*Symptomatic Anthrax—Black Quarter*)

CAUSE.—Due to germs. The Bacillus of Black Leg perhaps gains entrance to the blood by wounds of the skin or the mucous membranes lining the mouth and the intestines. This disease principally affects cattle, although sheep and goats may become affected with the same disease.

SYMPTOMS.—This disease affects cattle that are in good condition between the ages of six months and two years. In most cases death is very sudden, and perhaps the animal is found dead. The first symptoms are high temperatures from 104° to 108° F., loss of appetite, the animal stops chewing the cud, breathing considerably hurried, the joints of the limbs become swollen, also the chest and shoulders. All the swellings are painful on pressure and spread very rapidly over the body. The affected animals move with great difficulty and lie down frequently. If the hand is passed over the body, there is a peculiar crackling sound due to the gas developing under the skin. At the most distended portions of the swellings the skin becomes dry and the animal apparently has no sense of feeling. If the skin is punctured at this place, there will be a dark red, frothy discharge which has a very disagreeable odor. There will be a shivering of the muscles and the animal dies in convulsions.

TREATMENT.—Remove non-affected animals to non-infected pastures, and confine affected animals to as small a territory as possible. The carcasses of the dead animals should be buried deep and covered with lime or burned, being very careful that all blood stains on the ground where the animals have been skinned are thor-

oughly disinfected. Inoculation is necessary, and is the best form of treatment in localities where Black Leg exists. Inoculate or vaccinate the calves when six months old or over, although after the animal reaches the age of two years or over they generally become immune from this disease.

BLEEDING.

(*Hemorrhage*)

CAUSE.—Sometimes bleeding follows dehorning, castration, and wounds due to various other causes.

TREATMENT.—When bleeding from a large artery, it should be tied with a clean silk or linen thread or twisted with a pair of forceps or cauterized with a hot iron. Sometimes compression by the use of tightly bound bandages proves effective, although the former appliances are more practical. Tincture Chloride of Iron applied to small arteries or veins causes the blood to clot in the arteries or veins and hence stops the hemorrhage. It is very essential that all wounds should be treated antiseptically and I cannot say that I favor washing a wound with water only in cases where the wound is very filthy, and I prefer powder applications in preference to any other antiseptics. The following will be found very effective in the treatment of the majority of wounds: Boracic Acid, two ounces; Iodoform, two drams; Tannic Acid, one-half ounce; Calomel, one dram. Powder finely and mix well. Place in sifter top can and apply two or three times daily.

BLOATING.

A very common disorder in cattle and characterized by a puffed up appearance of the left flank. The cow has four stomachs, of which the rumen is the largest, its capacity being about fifty gallons in the average cow, and it is this stomach which fills with gas when a cow bloats.

Cause.—Eating green clover or alfalfa; even when a cow is accustomed to this diet, it may cause bloating if wet with dew or rain; cured alfalfa, moldy or frozen mangles will also produce bloating; the above mentioned foods undergo a process of fermentation which causes excessive formation of gas, and death may result very quickly and may be due to rupture of the stomach or the diaphragm (muscle separating the abdominal and lung cavities), but is more often due to suffocation caused by the distension of the stomach, which becomes so large that it presses the diaphragm forward against the lungs in such a manner as to stop their movement and the animal smothers. When the cow falls, it indicates that one of these possibilities has occurred and death follows quickly.

Symptoms.—Cattle usually bloat suddenly and without warning; the left flank becomes abnormally swollen, back is arched, breathing labored; sometimes the tongue hangs out and the animal bellows. When rupture or suffocation occurs the animal reels, staggers and falls, after which nothing more can be done.

Treatment.—No time should be lost. Where the stomach is enormously distended with gas so as to cause the animals to stagger and breathe very rapidly, they should be gagged. This can be easily accomplished by taking a piece of wood about two inches in diameter, and eight inches to one foot long, placing it in their mouth and retaining it in that position by tying a string on each end and placing it back of the ears. If this does not give relief immediately, puncture the left flank about five inches downward and forward from the angle of hip bone. However, puncturing should not be resorted to only in cases where death threatens the animal, as abscesses, infection and severe hemorrhage may follow. A very reliable medical treatment for this condition should be in the medicine chest of every veterinary, such as Pulv. Asafetida, Oil of Turpentine, each one ounce. Place in gelatin capsules. This is a very efficient remedy

for the eradication of excessive fermentation of gases in the stomach or intestines.

BLOOD POISON.

(*Pyemia—Septicaemia*)

Cause.—Due to a septic infection taken into the blood, frequently found in cows with retained afterbirths, following inflammation of the womb or intestines, wounds and bruises of the skin and frequently found in calves affected with Joint Ill.

Symptoms.—High temperature 103° to 107° F., pulse rapid and feeble, breathing increased, grinding of the teeth, the animal refusing to eat in most cases and ceasing to chew the cud, although there may be great thirst present. Abscesses may form in various parts of the body, the membranes of the eyes and mouth will be injected with blood, giving them a dark red appearance, although in the latter stages of Blood Poison this may change to a yellowish tinge. Constipation or Diarrhoea may be connected with the disease. The animal dies by general emaciation from four to six days after the first symptoms are noticed.

Treatment.—Unsuccessful, as when the infection once becomes absorbed in the blood it is always certain that death will follow. If due to injuries or wounds, wash them with Bichloride solution, one part to one thousand parts of water, but if due to retained afterbirth or inflammation of the womb, inject one gallon of distilled water containing five per cent Carbolic Acid. If in young calves, treat the same as under the heading of Joint Ill. If due to inflammation of the intestines, give Hyposulphite of Soda, two ounces; Potassi Iodide, one dram, two or three times a day in their drinking water. When abscesses form, lance them with a clean, sharp knife. If the animal is constipated, place two drams of Aloin, two drams of Pulv. Gentian Root in a capsule and give with capsule gun. If Diarrhoea is present, give

Gum Catechu, two drams; Protan, three drams; Zinc Sulphocarbolates, one grain. Place in gelatin capsule and give with capsule gun. Feed warm wheat bran mashes, steamed rolled oats, vegetables and green grass, if possible.

BLOODY FLUX.

(*Dysentery*)

CAUSE.—Chilling of the outer surface of the body. Improper feeding, as contaminated food or water, sometimes connected with parasitic diseases of the intestines.

SYMPTOMS.—Dysentery is a sign of some irritation of the intestines terminating with increased contractions of muscular fibers of the bowels. The fecal matter, if frequently expelled, at first consists of a thick feces, but as the disease progresses the fecal matter becomes very thin and watery tinged with blood and very offensive. When the first signs are noticed the animals show no constitutional disturbances, but later they exhibit abdominal pain by looking around to the flank. At this stage they are very weak, throwing the feet well together, giving the back an arched appearance, and are very uneasy although they may lie down frequently. Temperature elevated from one to three degrees. The animal becomes emaciated and eventually dies.

TREATMENT.—Determine the cause and remove it if possible. Keep the animal quiet. Give pure water to drink in small quantities but often. If the animal will eat, feed steamed rolled oats, etc. Flaxseed tea is very beneficial, as it is soothing to the intestines and assists in removing the irritations. Pour one quart of boiling water on one-half pint of pure Flaxseed, allowing it to cool, then compel the animal to drink it. The following prescription will be found very effective in all forms of Diarrhoea: Tannic Acid, one ounce; Protan, two ounces; Gum Catechu, two ounces; Beechwood Creosote, four scruples; Zinc Sulphocarbolates, eight grains. Make

into eight capsules and give one capsule every three or four hours with capsule gun.

BLOODY MILK.

Cause.—Bloody Milk may be the result of injury, congestion, inflammation of the udder. Feeding on rich milk-producing food suddenly may produce it. Bloody Milk is also produced in a cow by excitement when in heat or from eating resinous plants or shrubs.

Treatment.—It is advisable in most cases to give a physic consisting of two drams of Aloin and Ginger two drams. Also administer Potassium Nitrate, four ounces; Potassium Chlorate, two ounces, made into eight capsules and give one capsule twice daily with capsule gun. If due to rich food, reduce it. If due to eating resinous plants, remove them from the pasture containing such shrubbery. Where congestion or inflammation of the bag is thought to produce it, apply Hot Water Packs, then dry and apply Blue Ointment and Zinc Ointment, equal parts, two ounces. Mix well and rub on thoroughly two or three times a day.

BLUE MILK.

Cause.—This condition is due to a germ (the Bacillus Cyanogenes) which may occur in rich milk or cream immediately after being drawn or the germ may find its way into the opening of the teat.

Treatment.—Injections into the teat of a solution composed of the following: Hyposulphite of Soda, two drams; Boracic Acid, one dram, dissolved in one pint of boiling water. Permit to cool and inject a small quantity in each teat once or twice a day for three or four days. This will destroy the Blue Milk producing germ without any injuries to the cow udder, or teats.

BRONCHITIS.

CAUSE.—Inhaling irritating gases or foreign bodies. It is commonly seen after drenching from liquid escaping into the windpipe instead of going down the gullet. Animals exposed to cold, wet weather when not accustomed to it frequently develop Bronchitis.

SYMPTOMS.—Loss of appetite, chilling, temperature elevated two or three degrees above normal, ears and legs cold, nose hot and dry, breathing short and labored, painful coughing, slight discharge from the nostrils and saliva oozing from the mouth. If the ear is placed over the lower portion of the neck, a crepitating sound can be heard.

TREATMENT.—Place the animal in a clean, comfortable stall where there is pure air and light but no drafts. Clothe the body if the weather is cold. Hand rub the legs and bandage with woolen cloths. Give inhalations of steam from Hot Water and Pine Tar for twenty minutes two or three times a day. Also administer Nux Vomica, four ounces; Ginger, four ounces; Nitrate of Potash, four ounces. Make into sixteen capsules and give one capsule every four hours. Applications of the following liniment are of some value: Aqua Ammonia Fort., three ounces; Oil of Turpentine, three ounces; Sweet Oil, six ounces. Apply over the region of the windpipe the full length of the neck.

CALF SCOURS.

(*Cholera—White Scours—Bloody Flux*)

CAUSE.—It is produced by a specific germ and is communicated by direct or indirect contact with the germ which may gain entrance into the blood by the umbilical cord at or shortly after birth or through the digestive canal by drinking milk or eating food contaminated with the disease-producing germ. The more common means

of spreading the disease is through pails, drinking troughs, etc.

Sypmtoms.—One of the most deadly forms of Diarrhoea. This usually appears a few days after birth, although in some cases it takes several days for it to develop. Every sign of Diarrhoea is present, as frequent passages of feces of a yellowish-white color, frothy and very offensive in odor. The calf is very dull, weak, back arched, hair rough, eyes glassy and sunken back in their sockets, belly retracted, breathing short and fast. The calf finally lies flat on the side, head resting on the floor or ground with a temperature generally below normal. The calf finally becomes unconscious and death follows.

Treatment.—Give Protan, three ounces; Zinc Sulphocarbolates, eight grains; Gum Catechu, powdered, two ounces; Ginger, one ounce; Beechwood Creosote, one dram. Make into eight capsules and give one capsule every two hours until relieved. When the calf will take its feed, if not nursing its mother, see that the milk is pure and the utensil containing it thoroughly scalded with hot water. Keep the animal in clean, sanitary quarters, as quiet as possible for a few days, and if the disease is not too far advanced a good recovery will follow.

CALVING.

Signs of Normal Calving are firmness and enlargement of the udder, extending well forward following the milk veins. The teats as a rule discharge a thin milky fluid, relaxation of the muscles on each side of the croup or the base of the tail. The outer surfaces of the womb becomes swollen and inflamed, discharging sticky, stringy, transparent mucus. The cow becomes uneasy, stops eating, and if in a pasture becomes separated from the rest of the herd; will lie down and get up alternately as if in great agony. When birth pains start, the back is arched, and a severe straining follows the contraction

of the abdominal muscles. The membranes covering the fœtus will be the first to make their appearance, engorged with a fluid from the womb. This is commonly known as the water bag, which eventually bursts and the two fore feet can be seen, and, as the animal continues to strain, the nose and head will be next to be seen. When the calf's shoulders are exposed, the cow as a rule rises suddenly to her feet and the entire calf is expelled, also the membranes surrounding it, but the membranes next to the womb, as a general rule, remain longer and sometimes require artificial assistance to remove them. (See Retention of the Afterbirth.) Destroy the fœtal membranes by burning or burying them deeply. Do not permit the cow to eat them. Wash the calf's navel with Bichloride of Mercury, one part to one thousand parts water, once or twice a day until the navel is thoroughly dry, or an infection may follow, producing Joint Ill or Scours, from which death may result.

Abnormal Calving.—This is a condition where the fœtus is not normally presented, as that just described. Their feet may be presented in a normal manner, but the head and neck twisted back or to one side, or the head and one fore foot may be presented normally, while the other fore foot is doubled back, or there may be a breech presentation as the rump of a fœtus with both hind feet thrown close to its body. This is a very difficult presentation, especially if in a young ainmal. A fœtus abnormally presented requires good judgment and cleanliness, also lubrication of the walls of the womb with unsalted Lard, Cotton or Sweet Oil. Endeavor to place the fœtus in as near a normal position as possible before any force is used in its delivery, although where both hind feet are presented, it is advisable to remove it in this position. The hands and ropes should be clean and washed with a five per cent solution of Carbolic Acid. It is not only dangerous to the animal, but to the operator as well, if proper antiseptic precautions are not practiced.

Space does not permit me going into details on vari-

ous fœtal presentations nor does it permit me to explain the exact methods or operations I would use in each particular case. Nevertheless, good judgment and cleanliness are important. Do not hurry. Take your time, and you will be successful in most cases.

When the fœtus is removed, and the afterbirth does not come away within twelve or eighteen hours, remove it. (See Retention of Afterbirth, which will describe its means of attachment and its removal.)

CASTING THE WITHERS.

(*Eversion of the Womb*)

Cause.—Failure of the womb to contract after Calving. If the womb contracts naturally and the afterbirth expelled, the cavity of the womb is nearly closed and the neck of the womb becomes so narrow that the hand cannot be inserted. When the womb fails to contract, one or both horns of the womb become so relaxed that they fall into the cavity causing straining and contraction of the abdominal muscles, forcing the womb out gradually until the organ is turned inside out. The womb can be easily distinguished from the other membranes on account of the presence of sixty to eighty mushroom-like bodies (cotyledons) two to four inches in diameter attached to the walls of the womb by a narrow neck. The womb when hanging out becomes engorged with blood and inflamed until it is as large as a grain sack, very dark in color, tears and bleeds with the slightest touch. Later it becomes lacerated and gangrenous.

Symptoms.—At first, the general health is not very much interfered with, but the inflammation which is marked by an elevation in temperature becomes very noticeable, accompanied by severe straining and exhaustion. The animal lies down, but continues to strain until death, unless relief is afforded the animal at once.

Treatment.—Great care must be exercised. The parts of the womb coming in contact with the cow's hips,

tail or floors must be thoroughly washed with a five per cent solution of Carbolic Acid, using a soft cloth or sponge to remove dirt, clots, etc. Place the cow in a position so as to have her hind quarters much higher than the head, and then endeavor to replace the womb. After washing as stated above, bandage the tail with a clean cloth; have an assistant hold up the womb and the operator use gentle manipulation and pressure with clean hands; this perhaps is the best method of replacing the womb. Then follow by flushing out the womb with a weak Carbolic Acid solution and luke warm water. This has a tendency to straighten out the horns of the uterus and prevent infection. If the cow continues to strain, give Potassium Bromide in ounce doses every two or three hours in her drinking water, or place in capsule and give with capsule gun.

Sometimes stimulants and tonics are necessary and the following will be found very effective: Pulv. Nux Vomica, four ounces; Pulv. Gentian Root, four ounces; Pulv. Ferri Sulphate, four ounces. Make into sixteen capsules and give one capsule every six hours with capsule gun.

It is well to compel the animal to stand or lie with the hind parts elevated, until the signs of straining have ceased.

CATARACT OF THE EYE.

Cause.—Is due to deep seated inflammation of the eye produced by an injury or weakened condition of the optic nerve.

Symptoms.—If the pupil of one of the eyes appears larger than the other it is well to make a careful examination, as this is the first sign of Cataract. If such a condition is neglected, partial or complete blindness will follow and a white, pearly deposit can be seen on the lens of the eye.

Treatment.—Very unsatisfactory unless treated carefully when the first signs are noticed. Place the animal in a darkened stable. Feed clean, sloppy food and it may be necessary to give a physic consisting of two drams of Aloin, two drams of Pulv. Ginger, placed in a capsule and given with capsule gun. The following ointment: Yellow Oxide of Mercury, four grains; Lanolin, one ounce, should be mixed well and applied to the eye two or three times a day.

CATARRH.

Cause.—Ill ventilated stables, inhalations of irritating gases or sudden exposure to cold, wet weather, after being accustomed to warm stables. Most commonly seen in the Spring or Fall.

Symptoms.—Chilling and temperature elevated one or two degrees, pulse not much affected, breathing hurried to some extent, sneezing, coughing, dullness and the appetite is slightly impaired. In the first stages the nostrils are very dry and considerably inflamed, but in the course of a few days the fever subsides and a profuse discharge from the nose is observed.

Treatment.—Place the animal in dry, well ventilated stall, blanket well and supply a good quality and quantity of bedding. Give inhalations from steam and hot water and Pine Tar. If the animal is constipated, give rectal injections of Soap and Warm Water two or three times a day. Also administer Potassium Nitrate, Pulv. Nux Vomica, each four ounces; Capsicum, two ounces, and Pulv. Ginger two ounces. Make into twenty-four capsules and give one capsule three or four times a day. This should not be neglected, as neglected Catarrh is liable to be followed by Laryngitis, Bronchitis, Pneumonia, Pleurisy or other diseases of the organs of breathing, which are very serious and sometimes cause the death of the animal.

CHAPPED TEATS.

Cause.—Anything that tends to irritate them. A sudden chilling of the teat in cold weather after the calf has just let it go, or after the operation of milking with wet hands or from an animal wading through deep water or tall wet grass. Also filth or irritants coming in contact with teats when lying down.

Treatment.—Remove the cause if possible and dry the teats well after each milking and apply Zinc Oxide ointment. Feed laxative food that is easily digested, as it has a very good effect on the blood, consequently it promotes the healing of wounds.

CHOKING.

(*Obstruction of the Esophagus*)

Cause.—An obstruction of the Esophagus (gullet) produced by an animal attempting to swallow apples, potatoes, roots, dry grain, etc.

Symptoms.—A stringy discharge of saliva from the mouth, violent coughing, wrenching of the head and neck. The animal will bloat very quickly if the Esophagus or gullet is completely obstructed.

Treatment.—The obstruction as a rule is easily located, and as quickly as possible withdraw the obstruction by inserting the hand and extracting the object. Do not attempt to push the object down into the stomach, except as a last resort, as there is a great deal of danger of rupturing the Esophagus or gullet. Push the object upward by gentle manipulation from the outside. If this fails, a smooth piece of hose about eight or nine feet long, well greased with Lard, Butter or Oil, should be passed down the Esophagus or gullet. A block of wood

about two inches in diameter with a hole bored through the center just a little larger than the hose, placed in the mouth, will prevent the animal from biting the hose, and make the operation easier.

When the animal is bloated severely, puncture with a knife about four or five inches from the point of the hip downward and forward.

CHRONIC DYSENTERY.

(*Bacterial Dysentery—Johnes Disease*)

Cause.—Acid-fast Bacillus resembling the Tubercular Bacillus that invade the intestines by the way of the animal drinking water or eating food containing the Acid-fast Bacteria.

Symptoms.—Diarrhoea, loss of flesh, although the appetite is good, hair becomes dry and harsh, temperature remains about normal. The Diarrhoea becomes persistent and tinged with blood. The animal becomes emaciated and anemic, exhausted, and death follows. This disease may continue for a month or even a year before death takes place. However this is very uncommon. They generally die very shortly.

Treatment.—Separate the affected cattle from the healthy ones. All fecal matter should be deeply buried or burned, the stalls, barnyards, also thoroughly disinfected. Administration of medicine thus far has been unsatisfactory, although a treatment should be directed toward the intestines with internal antiseptics such as Zinc Sulphocarbolates, one and one-half grains; Protan, three drams; Pulv. Nux Vomica, one dram; Bismuth Subnitrate, one dram. Place in gelatin capsule and give with capsule gun. This dose should be repeated three or four times a day. Feed a good quality of food, such as wheat bran mashes or steamed rolled oats and see that the water supply is fresh and non-contaminated.

COLIC.

Cause.—Drinking large quantities of cold water when overheated. However, this disorder is very uncommon in cattle owing to the fact that they are not worked, seldom overheated, and drink water very slowly.

Symptoms.—Kicking or raising of the feet to the belly. Lying down and getting up alternately. Distention of the stomach or paunch with gas. The animal chills or shivers, etc.

Treatment.—Strong stimulants or tonics as the following will give immediate results if administered in its first stages: Pulv. Nux Vomica, two ounces; Pulv. Ginger, two ounces; Pulv. Capsicum, two ounces. Make into eight capsules and give one capsule every two hours until relieved. Give the capsules with capsule gun. If severe bloating accompanies a case of Colic in cattle place one ounce dose of Oil of Turpentine in ounce capsules and give with capsule gun.

CONGESTION OF THE LUNGS.

Cause.—Cattle permitted to stand in drafts when warm after being driven, etc., irritating drugs escaping into the lungs when drenching, as it is very difficult for cattle to swallow when their heads are elevated.

Symptoms.—Dullness. The animal loses its spirits, so to speak, usually shivers or trembles. When this ceases, the temperature rises to perhaps 105° to 106° F. The ears and legs grow cold, the nose hot and dry, pulse rapid but firm, breathing short and labored, a short hacking cough will be present. Such animals generally remain standing.

Other symptoms are constipation, the feces covered with mucus or a slime, great thirst. The eyes are inflamed and look glassy. The secretions of milk are suppressed, if these symptoms develop in milking cows.

Treatment.—Place the animal in clean, warm, comfortable quarters permitting light and as much pure air as possible, but avoid drafts and blanket the animal if chilly. Hand rub the legs and bandage with woolen cloths. Administer Pulv. Carbonate of Ammonia, four ounces; Pulv. Nux Vomica, three ounces; Quinine, two ounces; Nitrate of Potash, two ounces; Potassium Io-one ounce. Make into twenty-four capsules and give one capsule every four hours with capsule gun. Also apply a paste made from Mustard and cold water over the lung cavities just back of the fore legs. Apply once a day and perhaps one or two applications will be sufficient.

If this disease is treated when the first symptoms develop, a good recovery will follow. Feed easily digested food as hot wheat bran mashes or steamed rolled oats, vegetables and green grass if possible.

CONTAGIOUS ABORTION.

(*Infectious Abortion*)

Cause.—Due to germ (Bacollus Abortus) coming in direct contact with the genital organs of a bull or cow and can be indefinitely transmitted from one herd to another by infected bulls serving healthy cows, or infected cows when served transmit the infection to healthy bulls. Healthy cows become infected by their genital organs coming in contact with litter on floors when lying down or rubbing against fences, walls or posts previously soiled by aborting cows. Cattle licking one another is also a prolific cause.

Symptoms.—The signs of calving are not so well marked as in normal calving, especially where the aborting animal is a heifer and the gestation period has not exceeded three or four weeks. In cows, especially where the gestation period has advanced to five or seven months, the symptoms are easily detected as a rule by a swelling of the udder, or what is commonly termed "making bag," the outer portions of the womb swollen and

inflamed as in normal calving. As the period of abortion approaches, there will be a discharge of mucus and blood from the womb. Labor pains are not as severe as in normal calving, owing to the absence of hair on the foetus and being smaller; although the afterbirth (foetal membranes), may be retained the same as in normal calving.

Preventive Treatment.—This perhaps is the cheapest and best method of treating Contagious Abortion. When purchasing bulls or cows, ascertain whether the farm you purchased from has Contagious Abortion. An investigation of this kind often saves labor, time and money.

Medical Treatment.—When once Contagious Abortion makes its appearance, separate infected from non-infected animals, remove all litter, manure, etc., from barns, corrals, and burn or bury deeply. The conveyances used should be tight so as to prevent scattering. Scrub and disinfect floors, fences, walls and barns and rubbing posts with a solution made from three pounds of Copper Sulphate to ten gallons of water, permitting it to thoroughly dissolve before using. Use an ordinary barrel and cover so as to prevent any cattle drinking same, as it is very poisonous. When a cow aborts, remove the calf and afterbirth in a tight receptacle that will prevent any portion from being scattered, and burn or bury deeply; disinfect the floor and walls of stall where the abortion took place as long as the cow is discharging any fluids from the womb. A gallon of distilled or boiled water containing about one per cent Carbolic Acid should be injected into the womb with an ordinary hose and funnel. This should be repeated once a day for a week. Use a solution of the same strength for washing the tail and parts around the outer part of the womb, or in fact any part that the discharge of an aborting cow may come in contact with.

Internally, give Methylen Blue in thirty grain doses, every other day for two weeks. This is an exceptionally

disagreeable drug to administer as it stains everything it comes in contact with. Place it in a gelatin capsule or have your druggist prepare six or seven capsules containing thirty grains each. Then administer with capsule gun. Insist on pure Methylen Blue, accept no substitute. This treatment has proven very effective in many localities where strict aseptic precautions were carried out, as washing out the womb or any parts that the discharge of an aborting cow may come in contact with and proper cleanliness and disinfection of stables, etc. Cows should not be bred for several weeks following abortion or as long as there is a discharge present. Bulls should be treated in much the same way, as administering Methylen Blue in same size doses for the same length of time as that of the cow. But in addition to this, use a one per cent solution of Carbolic Acid for injecting into the bull's sheath, holding the end of the sheath while the solution is being injected, until it is well distended; holding the opening of the sheath allowing the solution to remain as long as convenient. Also, wash belly, muzzle, etc., with a solution of the same strength.

COUGH.

(*Acute and Chronic*)

As a cough is a symptom of various diseases, these in addition to the cough should be treated.

KINDS OF COUGH.—Many writers give several different varieties, but for the sake of convenience I will divide them into two forms, namely: Acute and Chronic.

CAUSE.—Acute coughs are generally due to sudden exposure of cold, drafts and are the forerunning symptom of a disease of the organs of breathing.

Chronic Coughs are associated with, and are a result of sore throat, lung fever, pleurisy, bronchitis, catarrh and tuberculosis.

TREATMENT.—Under each disease, of which a cough

is a symptom, I have also prescribed to include its supprice, yet very effective in all forms of cough: Tannic pression. The following prescription is reasonable in Acid, one ounce; Potassi Chlorate, four ounces; Potassi Nitrate, four ounces. Powder well and mix with Black Strap Molasses, one pint, placing container with contents in hot water, which assists in dissolving. When this is thoroughly mixed, add Pine Tar, one pint, and place one tablespoonful well back on the tongue with a wooden paddle every three or four hours, according to the severity of the cough.

Sometimes a liniment applied to the throat and windpipe has a good effect, and I would recommend the following on account of its penetrating qualities: Aqua Ammonia Fort., two ounces; Turpentine, two ounces; Raw Linseed Oil, four ounces. Mix and apply twice daily, shaking the contents of the bottle well before using.

COWPOX.

(*Variola*)

Cause.—Investigations lead us to believe that it is due to protozoa. So far, the true micro-organism has not been discovered. This disease is very contagious and is transmitted by direct communication but not through the air. Perhaps the most common way of transmitting the disease is by the hands of the milker.

Symptoms.—A slight rise in the temperature, especially that of the udder and teats. They are red, swollen and tender and after three or four days small pimples or pustules will appear on the teats, about the size of a pea. The pimples or pustules become larger and within a few days may attain the size of one-half inch in diameter. At the end of the second week the pimples or pustules burst and discharge an amber colored fluid leaving raw sores, which cause the animal to suffer intensely

when being milked. The supply of milk is also markedly decreased in this condition.

Prevention.—A person should not milk both healthy and diseased cows unless the hands are thoroughly washed in a Carbolated Solution; the clothes that are likely to come in contact with the udder, coat sleeves, etc., changed.

Treatment.—It is advisable to give a physic as it has a very good effect on the blood, such as Aloin, two drams, and Ginger, two drams, which is easily prepared and administered by placing in capsule and giving with capsule gun.

Also, the application of Zinc Ointment two or three times a day affords immediate relief and causes the sores to heal rapidly. Good results are also obtained by feeding food that is easily digested, as bran mashes, steamed rolled oats and vegetables.

DIARRHOEA.

Cause.—Giving rich succulent foods after being fed on stimulating diets for some time, and such a case may be a benefit to the animal instead of an injury. Turnips, carrots, etc., especially if frozen slightly, are apt to produce it. Also impure and stagnant water which acts as a poison or some irritant in the food, as sand, clay, etc., or it may result from excitement, as driving cattle or shipping cattle in cars when not accustomed to it. Or, it may be the result of an overdose of irritating medicines. Diarrhoea as a rule is not fatal. It is often an effort of nature to relieve the system of some disease, as poison in the blood. The easiest way to get rid of it is by way of the bowels.

Symptoms.—It is easily detected. An animal has frequent passages which are of a liquid nature. At first the pulse is but little affected, but after a day or two it becomes weak and slightly increased. If it continues for a few days the pulse increases, the ears and

Symptoms.—Redness of the skin and the animal rubs itself; is usually confined to a small area at first, but eventually spreads. Considerable inflammation is present, also eruptions of the skin which discharge white, serous, sticky fluid, terminating in scabs and thickness of the skin. Sometimes suppuration or formation of pustules containing pus are present. These symptoms do not always occur in regular succession; in some cases the serums oozing from the skin will be more prominent than in others.

Treatment.—Determine the cause and remove it. If due to poor food, improve the quality. Also feed laxative food, as hot bran mashes, steamed rolled oats. If the bowels do not act freely, administer Aloin, two drams, and Ginger, three drams. Place in gelatin capsule and give with capsule gun. An ointment made from the following is very effective as an application in this condition: Blue Ointment, one ounce; Zinc Oxide, three ounces. Mix well and apply two or three times a day. A tonic usually has a very good effect in the treatment of this disease, and I would recommend the use of the following: Pulv. Gentian Root, four ounces; Potassium Nitrate, four ounces; Ferri Sulphate, four ounces. Mix and make into twelve capsules and give one capsule two or three times a day with capsule gun.

ERGOT POISON.

(*Ergotism*)

Cause.—Ergotism is produced by cattle eating fungoid growths which attack kernels and seeds of rye and blue grass, etc. These kernels or seeds grow dark in color and become abnormally large and curved in shape. The infected grass or hay when eaten by cattle contract the arteries, especially those of the legs, just above the feet, although all the arteries in the body are contracted to a certain extent. This disease is frequently seen in Spring and Summer.

horns are removed and wounds healed. When a horn is freshly amputated, apply Oil of Tar occasionally, as it is an antiseptic and prevents infection and the annoyance of flies. However, this should be performed during the season when the flies are less numerous.

DROPSY.

(*Ascities*)

Cause.—Usually seen in aged cattle fed on poor food where the blood becomes so poor, so to speak, that Dropsy follows. The presence of worms frequently stimulates excessive secretions of fluid, producing Dropsy.

Symptoms.—The abdomen is abnormally increased in size, flanks are gaunt, paleness of the membranes of the mouth and eyes and a general weakness. Pressure with the hand on the abdominal walls will produce a splashing, watery sound.

Treatment.—The cause at first should be determined and the disease treated accordingly. If due to worms, withhold all food for twenty-four hours. Place two ounces of Oil of Turpentine in gelatin capsules and give with capsule gun. Follow this in six hours with two drams of Aloin, three drams of Ginger in gelatin capsule and give with capsule gun. Feed nourishing food as wheat bran mashes and one cup of Flaxseed meal once a day. In their drinking water place one dram of Potassium Iodide two or three times a day. See that this water is drunk and give no other until this is consumed by the animal.

ECZEMA.

Cause.—Insanitary surroundings, as warm, damp stables. Overfeeding, swills, decomposed vegetables. Applying irrigating drugs to the skin.

Symptoms.—Redness of the skin and the animal rubs itself; is usually confined to a small area at first, but eventually spreads. Considerable inflammation is present, also eruptions of the skin which discharge white, serous, sticky fluid, terminating in scabs and thickness of the skin. Sometimes suppuration or formation of pustules containing pus are present. These symptoms do not always occur in regular succession; in some cases the serums oozing from the skin will be more prominent than in others.

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Symptoms.—Ergot is prescribed in cases of bleeding, because of its contracting effect upon the arteries (closing or stopping the flow of blood) where the blood supply is the weakest, as in the extremities. It is cut off and this, of course, causes the skin just above the hoofs to break or crack as though it were cut with a knife. This shuts off the entire supply of blood to the foot, which mummifies, and the lower portion becomes gangrenous and eventually sloughs off. One of the first effects of Ergot Poison in pregnant cattle is abortion, due to the blood supply to the womb being shut off by its contracting effect on the arteries. Cattle are particularly susceptible to Ergotism.

Treatment.—When Ergotism is so advanced as to produce sloughing of the feet it is best to destroy the animal. If other animals are affected slightly, find out the cause and remove it. Look to the hay or pasture as the producer. Administer one-half ounce of Chloral Hydrate, two or three times a day in their drinking water or mix it with sufficient quantity of Flaxseed meal to fill an ounce gelatin capsule and give with capsule gun. If the skin is slightly broken above the foot, wash with five per cent solution of Carbolic Acid. Where the feet have become gangrenous amputation of the foot or feet is necessary, which is not advisable unless the animal is very valuable.

FLUKE.

(*Liver and Lungs*)

Cause.—This disease is contracted by cattle grazing on marshy lands. There are two different species of Fluke that affect the liver and lungs of cattle. They are both flat, leaf-like worms. The Common Liver Fluke is about one-half inch long, while the so-called American Fluke is somewhat larger. In their life history these Flukes depend on snails as intermediate hosts. At a certain stage of development the young Flukes live on

snails. They become encysted on stalks and blades of grass which are finally swallowed by grazing cattle. This disease is most frequently seen in young cattle.

Symptoms.—The animal shows no marked signs at first, but eventually the appetite diminishes, rumination or chewing of the cud becomes irregular, the animal becomes dull, hide-bound, hair standing, the visible mucous membranes of the mouth and eyes become pale and bloodless, the eyes discharge watery fluids which ooze down the face, temperature varies from two to three degrees above normal and milk supply, if in aged cattle, remarkably reduced. In all cases there is great thirst and the animal becomes very much emaciated and refuses to eat. Swellings about the belly and breast, etc. Diarrhoea at first, alternating with constipation, but finally becomes continuous. The diseased animal succumbs to the malady in from two to six months.

Treatment.—Medical treatment is unsatisfactory. The disease will be prevented to a considerable extent by giving animals plenty of salt and in the marshes containing pools of water introduce or plant carp, frogs and toads into the infected tracts. These will destroy the young parasites and feed upon the snails which serve as their intermediate hosts. Or, prevent the cattle from grazing upon swampy marshes by fencing them out.

FOOT AND MOUTH DISEASE.

(*Infectious Aphtha—Epizootica Eczema*)

Cause.—This disease is produced by a specific agent or germ, the exact nature of which is not known. It will pass through the Berkfelt filter, which is the most minute filter known to science, and is therefore known as a filterable virus. This is an eruptive fever and belongs to the class of Exanthematous diseases such as smallpox, measles, scarlet fever, etc. Every outbreak starts from some pre-existing infection. The infection is distributed by manure, pastures, barnyards, hay, drinking troughs,

box-cars, ships, boats which have been previously occupied by animals affected with this disease, travel over public highways or man may carry the infection of this disease on his clothing and transmit it to healthy cattle, etc. Foot and Mouth Disease not only affects cattle, but attacks a variety of animals, as the horse, sheep, goat, hog, dog, cat, also wild animals as buffalo, deer, antelope, and man himself is not immune from this disease. Children also suffer from Foot and Mouth Disease, resulting from drinking unboiled milk from infected cattle. Therefore, when purchasing cattle be very careful, as you may be buying an infectious disease. Keep the newly purchased animals to themselves for two or three weeks, if possible. This will give ample time for the majority of infectious diseases to develop.

Symptoms.—The disease usually makes its first appearance in three to six days after being exposed, by chilling, rise of temperature, and in a day or so pustules varying in size from that of a pin head to that of a pea appear. They appear upon the inner surface of the lips, gums and upper surface of the tongue. The feet also become affected between the digits. The udder usually becomes affected, especially in milking cows. As soon as this disease becomes well established the affected animal evinces great pain when attempting to eat. The animal generally refuses food. In many instances they shut and open the mouth with a smacking sound owing to the stringy saliva flowing from the mouth. The ulcers in the mouth continue to enlarge until they attain the size of one-half to two inches in diameter. The mucous membrane covering these ulcers breaks and a watery discharge escapes. In a few days the surface of the ulcers takes on a whitish appearance. The same changes take place in the feet and the animal becomes very lame and the udder very much swollen, the ulcers discharge, etc.

Prevention.—When any of the above mentioned symptoms are noticed, non-affected animals should immediately be removed to non-affected quarters. This dis-

ease is not communicated through the atmosphere but by the animal coming into direct contact with the infection or virus; hence it is not necessary to move unaffected animals any great distance but merely to clean, sanitary quarters which have not been subjected to any possible infection from the diseased animals. It must be borne in mind that the attendant or helper cannot be too careful in the matter of his own actions and dress as the infection is easily carried through clothes, fecal matter, etc., adhering to shoes or any matter or articles, such as buckets, brushes, rubrags, blankets, etc.

The existence of this disease should at once be reported to the State Veterinarian of your State or to the United States Bureau of Animal Industry at Washington, D. C.

Treatment.—I cannot recommend any treatment as being satisfactory or a cure, for although under some treatments the animal appears to make a good recovery, in the majority of cases the feet are disfigured and crippled, the udder permanently injured with growths, animal unfit for milking purposes, and the mouth, tongue and teeth left impaired; the mouth and tongue strictured from wounds and the teeth loosened from the gums. Furthermore, should an animal make apparent recovery, it is not immune from a recurrence of the disease. In treating the disease, there is not only danger of spreading the disease to other animals, but to man. The flesh or milk from animals apparently cured should never be used unless first examined by a qualified meat inspector.

Without question, all animals showing severe symptoms as above described should be at once slaughtered and buried six feet or deeper, covering carcass with Quicklime and then promptly filling grave, according to the Government regulations, which should be followed explicitly. Be careful to disinfect scene of slaughter, as bloodstains, etc. The United States Bureau of Animal Industry regulates the disinfectants to be used and the strength thereof, and as these are subject to change from

time to time, I must refer you in this matter to the proper Government authorities.

Medical Treatment.—If permitted by Government authorities, I would suggest the following treatment as being beneficial: In mild attacks of Foot and Mouth Disease benefits may be derived by cleanliness and the applications of antiseptics as placing Boracic Acid, one dram; Potassium Chlorate, two drams, in a bucket of water, compelling the animal to drink it. Repeat this dose two or three times a day. Also compel the animals to stand in tubs or troughs containing a one in one thousandth solution of Bichloride of Mercury for at least five minutes, twice daily. When other parts of the body become affected, as the cow's udder, apply Carbolated Vaseline twice daily. This treatment should be continued until all ulcers have ceased to discharge. Always keep in mind that this disease is contagious and is transmitted to other animals, as well as to man. For disinfecting corrals, barns, clothing, hands and anything which the diseased animal might come in contact with, I would recommend Coal Tar products, diluted one part to fifty parts warm water. Spray, sprinkle or scrub.

FOOT ROT.

(*Foul in Foot*)

Cause.—Due to filth or from hard substances accumulating between the two digits, producing irritation and inflammation and suppuration.

Symptoms.—Lameness. On examination the foot is swollen, hot and painful to the touch. When the case is of long standing, suppuration occurs and pus will ooze from between the digits, and is very offensive in smell. This condition causes the digits to slough off, if no attempt is made to relieve it.

Treatment.—Cleanliness. Where there is considerable inflammation present, apply Hot Bran or Flaxseed

poultices. Keep clean and treat as an ordinary wound. The following prescription will be found very effective in Foot Rot: Oil of Origanum, four ounces; Oil of Pisis, four ounces; Oil of Turpentine, four ounces. Saturate oakum or cotton with the above liniment placing between the digits and bandage. Feed laxative food, as hot wheat bran mashes and vegetables.

FOUNDER.

(*Laminitis*)

Inflammation of the internal, sensitive structure of the foot.

Cause.—Overfeeding, overheating, driving on rough, stony soil. Cattle compelled to stand on hard floors without exercise frequently suffer from Founder.

Symptoms.—The animals lie down a great part of the time. Feet hot and tender and if made to walk they do so with great difficulty. One or all four feet may become affected, although it is more frequently found in the front feet. The temperature is somewhat elevated, varying from 104° to 106° F., breathing very rapid, appetite fairly good and there will be great thirst. Founder in cows reduces the milk secretion, owing to the great fever that is present.

Treatment.—Apply cold packs to the feet, ice packs preferred. If the animal can be made to stand in a stream of water having a soft bottom, it, perhaps, is the best method of cooling off the feet. Give a physic of Aloin, three drams; Pulv. Gentian Root, two drams. Place in a gelatin capsule and give with capsule gun. To their drinking water add two or three drams of Potassi Nitrate three or four times daily. Animals suffering with Founder should be provided with soft ground to stand on, as their feet will be tender and subject to the chronic form of the disease.

GARGET.

(*Congestion of the Udder*)

Cause.—Very common in heavy milkers before or just after calving when the bag is very much enlarged and very sensitive; exposure to chill or standing in drafts or even neglected for too long a time in milking. Injuries may also cause Garget.

Symptoms.—The bag is very much enlarged, showing signs of inflammation. The swelling extends well forward following the milk veins. The cow has great difficulty in walking due to sensitiveness of the bag. When milked for two or three days the swelling disappears after the secretion is fully established, but as a rule is tinged with blood. Sometimes small clots of milk or cheese-like particles are ejected with the milk.

Treatment.—Give a physic consisting of Aloin, two drams; Pulv. Ginger, three drams. Place in gelatin capsule and give with capsule gun: Hyposulphite of Soda, sixteen ounces; Nitrate of Potassi, four ounces. Mix and make into sixteen powders. Give one powder three times a day in drinking water or place in gelatin capsule and give with capsule gun. Also dissolve Bichloride of Mercury, two grains; Boracic Acid, two drams, in one quart of boiling hot water. When this solution cools to about blood temperature, after stripping all milk fluid or pus from the affected teat or teats, inject with an ordinary bulb injection syringe after placing a teat tube into the end from which the air escapes when the bulb is pressed. Now, place the end of the syringe retaining the teat tube in the affected teat, the other end place in a bottle or vessel containing the solution and gently press the bulb and inject about a pint of the solution in each affected quarter. Leave the solution in the teat for only fifteen to twenty minutes and milk out thoroughly. Repeat this treatment two or three times a day.

For an external application the following ointment has given remarkably good results: Blue Ointment and Zinc Ointment, equal parts. Mix well and apply two or three times daily.

HARD MILKERS.

CAUSE.—A thickness or contraction of the mucous membranes lining the teat, or growths inside the teat.

TREATMENT.—All antiseptic precautions should be carried out in this operation, as boiling the instruments and then covering them with Carbolated Vaseline. Then with a hidden bistoury or a knife concealed in a tube, force upward into the teat, then press out the little blade and draw the instrument down the teat, making about four incisions equal distance apart around the inner surface of the teat. The use of self-retaining teat dilators prevents the contraction of the cut surface. Permit them to remain in the teat for two weeks, removing them only when the milk is being stripped from the teat. Always place them in boiling water and cover with Carbolated Vaseline before inserting.

HOLLOW HORN.

Horns of the cattle tribe are normally hollow, although a core extends well into the horn. This, however, is merely a prolongation of a porous bone of the head which affords a point for the horns' attachment, consequently when a cow is sick and the temperature is elevated, the horns are naturally hot, it being the symptom of a disease and not a disease of itself, should be treated under its special heading.

The supposed disease "Hollow Horn" once upon a time was treated by boring a hole into the horn with a small gimlet and pouring Turpentine into the opening. This treatment is useless and harmful. It produces in-

flammation of the frontal sinuses of the head and chances are death of the animal will follow as a result of the treatment and not of the disease.

INDIGESTION.

Cause.—Animals with a voracious appetite will overload their stomachs with food that is hard to digest or is decomposed, causing the organs of assimilation to become weakened, sluggish and incapable of doing their proper work.

Symptoms.—The animal ceases to ruminate (chew its cud); stands quietly, hair rough, nose dry, temperature elevated one to two degrees, breathing usually faster than normal with slight grunts at each expiration of air from the lungs. The secretions of milk are suddenly diminished. If the hand is placed against the left side and quickly removed, a marked depression or pit will remain, which shows that the paunch is full of undigested food. Bloating is also frequently accompanied by indigestion.

Treatment.—Administer Aloin, three drams; Ginger, three drams. Place in capsule and give with capsule gun. Permit the animal to drink all the water possible. If bloating is present give two-ounce capsules filled with Turpentine with capsule gun. A tonic is quite necessary in this condition, and the following I am sure will be followed by good results if the case is not of too long a standing: Sodium Bicarbonate, eight ounces; Pulv. Nux Vomica, four ounces; Pulv. Gentian Root, four ounces; Pulv. Ginger, four ounces. Place two tablespoonfuls in gelatin capsule and give with capsule gun every six hours. Very good results are also obtained from rectal injections of soap and warm water. Feed good nourishing food sparingly, compelling the animal to exercise, etc.

INFLAMMATION OF THE BAG.

(*Simple Mammitis*)

Cause.—Injuries, as blows, kicks, etc.; lying on cold, rough ground or floor, standing in drafts, sudden change of weather. Derangement of the system is likely to affect the udder; poorly milked or stripped cows are often victims of Mammitis. Infections in the teat from inserting dirty instruments, as using a bicycle pump for the treatment of Milk Fever. Cows with a retained afterbirth are likely to infect the udder by switching their tail. This condition is very common in heavy milkers following calving.

Symptoms.—The animal chills, hair stands, temperature elevated from one to three degrees above normal; ears, horns and legs cold, which may suddenly become very hot; pulse rapid, breathing hurried, bag hard and swollen and very tender on pressure. When attempts are made to milk, a watery substance comes away, almost colorless at first, but later becomes tinged with blood and pus and has a fetid color. The cow's muzzle is dry, appetite poor, but great thirst exists. This condition may affect one or more quarters of the udder. Abscesses may form and the udder break and a thick yellowish pus oozes out or the milk glands may solidify and cause hard, lumpy growths in the udder.

Treatment.—Prevention. If an animal is once slightly affected with inflammation of the bag, it is likely to develop a bad case of Mammitis from the slightest injury or exposure as stated above, which depreciates a cow considerably as a milk producer, especially on the market. Great care should be exercised when purchasing a cow for milking purposes. See that the teats and udder are sound, free from lumps, etc.

Medical Treatment.—Hyposulphite of Soda, sixteen ounces; Nitrate of Potassi, four ounces. Mix and

make into sixteen powders. Give one powder three times a day in drinking water or place in a gelatin capsule and give with a capsule gun. Also, dissolve Bichloride of Mercury, two grains; Boracic Acid, two drams, in one quart of boiling hot water. When this solution cools to about blood temperature, after stripping all milk fluid or pus from the affected teat or teats, inject with an ordinary bulb injection syringe after placing a teat tube into the end from which the air escapes when the bulb is pressed. Now, place this end of the syringe retaining the teat tube in the affected teat; the other end place in a bottle or vessel containing the solution and gently press the bulb and inject about a pint of the solution into each affected quarter. Leave the solution in the teat for only fifteen to twenty minutes and milk out thoroughly. Repeat this treatment two or three times a day.

For an external application, the following ointment has given remarkably good results: Blue Ointment, two ounces; Lard, two ounces. Mix well and apply twice daily.

INFLAMMATION OF THE EYE.

(*Conjunctivitis*)

Cause.—Injuries, irritating gases, standing in dark and poorly ventilated stables or foreign bodies in the eye, as chaff, etc.

Symptoms.—A constant flow of tears from the eye running down the animal's face, which are due to the inflammation of the lining membranes of the eye. The eye is partially or completely closed.

Treatment.—If due to a foreign body, remove it. In order to accomplish this, the animal must be placed in a stanchion, the head twisted and the eyelid turned back. Do not use burnt alum as this will only make the condition worse. Use Boracic Acid, thirty grains; distilled water, one ounce. Apply to the eye three or four times daily, using an ordinary eye-dropper.

INFLAMMATION OF THE HEART SACK.

(*Pericarditis*)

CAUSE.—Cattle being ruminants, do not masticate their food finely before swallowing; consequently foreign bodies, such as nails, wire, etc., are picked up with the food and taken into the rumen or paunch. These sharp objects penetrate the walls of the paunch, rumen or first stomach and pierce the membrane or sack surrounding the heart, which produces an inflammation of the heart sack, or Pericarditis.

SYMPTOMS.—Symptoms develop very slowly or indications of indigestion will be present as the appetite is variable, temperature elevated, breathing labored, the animal avoids walking down hill as it causes pain from the stomach and intestines pressing the lungs against the heart. The symptoms, however, are so slight that they may easily escape the notice of a casual observer. The animal eventually becomes poor, emaciated and dies. If you open the heart sack, it will be found full of watery pus.

TREATMENT.—Unsuccessful, as this disease is seldom diagnosed correctly, and if it is an operation is necessary and this does not prove successful in the majority of cases.

INFLAMMATION OF THE KIDNEYS.

CAUSE.—Injuries in the region of the kidneys, exposure to cold weather, especially in cows soon after calving. Eating poisonous plants, decomposed food or drinking stagnant water, irritating medicines given ignorantly of their bad effects are frequently followed by inflammation of the kidneys.

SYMPTOMS.—The attack will first be noticed by slight shivering or chilling followed by an increased tem-

perature, breathing increased. The animal attempts to urinate frequently and the amount passed is small and of a dark amber color and may be flaked with blood. There will be stiffness and straddling of the hind legs which is always present during urinary disorders. There may be slight swelling and tenderness over the kidneys. As the disease progresses the animal grows weak and finally dies if prompt relief is not afforded. Fortunately this disease is not common among cattle.

Treatment.—Clothe the animal if the weather is cold. Mild physics are beneficial, as Aloin, one and one-half drams; Ginger, two drams; Nux Vomica, two drams, placed in a gelatin capsule and given with capsule gun. Also, the following, which is very soothing to the urinary tract: Potassium Acetate, Potassium Bromide, each four ounces, made into sixteen powders. Give one powder every four hours in their drinking water. Feed nitrogenous food as hot wheat bran mashes, steamed rolled oats, and see that the animal has pure water to drink.

INFLAMMATION OF THE PENIS.

Cause.—Injuries received from snags, walking through underbrush, jumping fences, etc.

Symptoms.—Arched back, swelling of the sheath and in some cases a discharge. It may be serious enough to affect the appetite and cause fever.

Treatment.—Wash out the sheath two or three times daily with a three per cent solution of Boracic Acid. If the inflammation extends pretty well back in the sheath, it is advisable to inject this solution with a syringe, carefully, as far back as possible. Withdraw the syringe, holding the opening of the sheath so as to retain the solution for a few minutes before allowing it to escape.

Feed laxative food and supply the animal with fresh

water to drink. If there is considerable fever, administer Potassium Nitrate, Pulv. Nux Vomica, each two ounces. Make into eight capsules and give one capsule two or three times a day.

INFLAMMATION OF THE WOMB.

Cause.—Injuries, as bruises, laceration, sustained during calving, especially where the cow is assisted with instruments or hands that are not thoroughly aseptic, an animal retaining the afterbirth which undergoes putrefaction, and consequently sets up an inflammation of the womb, or perhaps the animal may become infected during the act of removing the afterbirth if the operator is neglectful about washing his hands or washing the womb out thoroughly.

Symptoms.—The animal will chill, the temperature elevated two or three degrees, the back will be arched, stiffness of the hind parts, legs, ears and horns cold, nose hot and dry, grinding of the teeth, the cow usually remains standing, ceases to chew her cud, the secretions of milk will be markedly reduced and a day or so after the symptoms appear, there will be a discharge from the womb of a reddish lumpy nature. This becomes thick and yellow containing small particles of flesh, showing that the inner lining of the womb is sloughing. This discharge is very offensive in odor. A cow in this condition requires the best of care or she will die as the decomposed substance in the womb may be absorbed into the circulation and produce Pyemia or Septicemia (Blood Poison).

Treatment.—Give Aloin, two drams; Pulv. Ginger, three drams, place in a gelatin capsule and give with capsule gun. Flush out the womb throroughly with a tablespoonful of Carbolic Acid to one gallon of water two or three times a day. A convenient instrument for flushing out the womb can be made from an ordinary

funnel and a clean hose about four feet long. This answers the purpose of an injection syringe very well. In their drinking water add the following: Hyposulphite of Soda, sixteen ounces; Potassium Iodide, two ounces. Make into sixteen powders and give one powder two or three times a day.

In addition to the above treatment it is necessary to give alteratives and bitter tonics to build up the condition of the animal as soon as possible. The following will be found very effective: Pulv. Gentian Root, four ounces; Pulv. Ferri Sulphate, four ounces; Nitrate of Potash, four ounces. Mix and make into sixteen powders and give one powder three times a day. Place in a gelatin capsule and administer with a capsule gun.

My reasons for giving animals medicine in capsules are:

1. There is no danger of liquids escaping into the lungs, as in drenching.

2. Any drug having any beneficial effects as a tonic is very bitter, consequently the only way the animal will take it is by placing in capsule.

JOINT ILL, NAVEL ILL.

(*Umbilical Pyemia and Septicemia*)

Cause.—This disease is produced by various germs entering the navel cord of newly born calves when dropped, the navel being freshly severed and coming in contact with filth and manure where germs are numerous, consequently germs adhere and enter the blood stream. Calf Scours as a rule is associated with this disease.

Symptoms.—Swelling of the joints which are very hot and painful on pressure, and when the calf is made to move it walks stiffly and slowly, does not care to nurse its mother or take any food, temperature elevated from

105° to 108° F., breathing hurried, pulse very weak and quick. There will be an offensive discharge from the navel cord of a yellowish color and swollen joints finally break and also discharge a thick yellow pus. The calf becomes emaciated and finally dies from exhaustion.

TREATMENT.—Prevention. Provide clean surroundings for cows when calving, and in addition to this have a one in one-thousandth solution of Bichloride of Mercury on hand. Wash the navel well in the solution once a day until the cord is thoroughly dried.

MEDICAL TREATMENT.—Unsuccessful. Sometimes the calf recovers, but at best the calf is badly stunted and is very seldom worth keeping. However, the following method of treatment has been followed with fairly good results: Wash the navel cord well in a one-thousandth solution of Bichloride of Mercury two or three times a day and give Zinc Sulphocarbolates, one-fourth grain; Potassi Iodide, five grains, in a little water or milk three or four times a day. Feed them three or four eggs a day, molasses, fresh milk. This will keep up the strength and vitality and a good recovery may follow, although it is an exception and not a rule.

LACERATION OF THE EYELID.

CAUSE.—An eyelid may be torn on the manger, rubbing post or barb wire fence, etc.

TREATMENT.—Wash the lacerated portions of the eye thoroughly with a five per cent solution of Carbolic Acid. It may be necessary to take a few stitches in the wound or the torn edges may be cut off with a pair of sharp scissors. If stitches have been taken, they should be removed after the parts have united and the eye kept clean. A very convenient application for the eye in this condition is Boracic Acid, one dram; Distilled Water, four ounces. Apply liberally to the eye.

LEECHES.

(*Blood Suckers*)

Leeches which suck blood of cattle are sometimes taken up by the animals when drinkig water from ponds, etc. The leeches attach themselves to the inner surface of the mouth or nose, and sometimes reach the upper part of windpipe or the gullet. Bleeding at the mouth or nose may be noticed, the membranes where the leeches attach themselves become congested and swollen, and as a result of the loss of blood anemic condition follows.

Treatment.—If the leeches can be reached, they are easily destroyed by cutting them in two with a pair of scissors or they may be removed with a pair of forceps or with the fingers after wrapping a piece of cloth around them so as to prevent slipping.

Steam from boiling hot water containing Pine Tar or Oil or Turpentine may cause leeches to release their hold if they cannot be removed by other means. In ponds where leeches are numerous, eels should be introduced as they feed upon blood suckers of this species.

LUMPY JAW.

(*Wooden Tongue, Big Head, Actinomycosis*)

Cause.—The Ray Fungus. This organism which occurs in the tissues in the form of russets is directly transmitted from one animal to another. It seems apparent that the fungus is conveyed into the tissues of the mouth by various food stuff through slight wounds of the mucous membranes of the mouth or an animal that has decayed teeth or during the shedding of milk teeth. The Ray Fungus is found naturally vegetated or clinging on the awns of barley, the spears of oats and on other grains. Qunatities of fungi have been found between the vege-

table fibers of barley which had penetrated the gums of cattle and on the awns of grain imbedded in their tongues.

Lumpy Jaw can also be transmitted by coming in contact with or eating food over which lumpy jawed cattle have slobbered. A healthy animal eating such food with very slight bruises or abrasions of the mouth will contract the disease very readily. This disease is misleading as other organs are affected with the Ray Fungi or the Bacillus of Actinomycosis, as the lungs and even the digestive organs have been found to be affected with this disease.

Symptoms.—External symptoms or signs are the only means by which to ascertain the disease. Its exact location is on the lower jaw bone near its angle. It may also affect the upper jaw, but this is an exception and not a rule. Internally it may affect the tongue, mouth, throat or lungs, but rarely the intestines. This enlargement continues to grow until it reaches the size of that of a man's head, breaks and discharges pus. The animal becomes poor and emaciated, the hair takes on a dull roughened appearance and in many cases it is very difficult for it to eat, especially where the disease separates the gums and bone from the teeth and causes them to become very loose or to drop out. The animal in the latter stages of this disease generally dies from starvation.

Treatment.—Successful in its first stages. Soft, nitrogenous food should be fed, such as wheat bran mashes, steamed rolled oats or barley, hay dampened with clean water, so as to make it pliable. Hay containing woody matter as stems, etc., should not be fed to an animal affected with Lumpy Jaw as it tends to aggravate the disease. Internally in their drinking water give two drams of Potassium Iodide morning and night. This treatment, however, should be omitted when the animal's skin becomes scaly or when an excessive watery discharge flows from the eyes. On the outer surface over the enlargement apply the following ointment:

Red Iodide of Mercury, four drams; Lard, two ounces. Mix well and rub in briskly for twenty minutes every five or six days for three weeks. The cure can generally be ascertained by the animal gaining in flesh, although the lump may remain. Where Lumpy Jaw is of long standing so as to impair the use of the animal's tongue or teeth, it is best to destroy the animal, as this lessens the possibility of infecting healthy animals.

LUNG FEVER.

(*Pneumonia*)

Cause.—Generally follows congestion of the lungs. It may be due to parasitic organisms or exposure to cold, drafts when warm after being driven, etc. Drenching perhaps is the most common cause as it is very difficult for a cow to swallow when the head is elevated; inhaling smoke, gases, etc., also tend to produce pneumonia.

Symptoms.—Chilling or shivering, temperature elevated to 105° or 106° F., nose hot and dry, horns and legs cold. Pulse rapid though strong, breathing fast and the appetite very good in some cases. The animal urinates small quantities of urine but often, of a dark amber color. A discharge from the nose follows, also a cough. If the ear is placed back of the fore leg, a dry crackling sound can be heard something on the order of rubbing hair between the fingers.

Treatment.—Place the animal in a dry, well lighted and ventilated stable, but avoid drafts. Give Pulv. Iodide of Ammonia, one ounce; Pulv. Potassium Nitrate, four ounces; Pulv. Nux Vomica, four ounces; Pulv. Capsicum, one ounce; Quinine, one ounce. Mix well and make into thirty-two powders. Place one powder in gelatin capsule and administer every three or four hours with capsule gun. Supply the animal with fresh water at all times. Feed laxative food as hot wheat bran mashes or steamed rolled oats. Also feed vegetables, such as potatoes, apples, carrots and kale. It is also ad-

visable to apply the following over the region of the lungs just back of the fore legs: Aqua Ammonia Fort., four ounces; Oil or Turpentine, four ounces; Raw Linseed Oil, six ounces. Mix and shake well and apply two or three times daily. It is also advisable to hand rub the legs and bandage them with woolen cloths.

If the above treatment is properly carried out, the animal will make a complete recovery in a week or ten days.

LOSS OF CUD.

CAUSE.—This condition cannot always be traced to a definite cause, as it is a symptom of all diseases where the process of rumination is interfered with. The only method by which a cow will again chew her cud is to restore her to health by the proper medical treatment. Artificial cuds are of no value and frequently are a detriment to the animal. Other symptoms aside from those of the animal not chewing cud will always make their appearance, as constipation, diarrhoea, elevation of the temperature, etc. The animal should be thoroughly examined and the disease treated under its special heading.

MANGE.

(*Scabies*)

CAUSE.—There are four different parasites which produce Mange or Scabies in cattle. However, three of these parasites are rarely seen. The Symbotis Communis is the parasite commonly seen in American cattle. These parasites multiply very rapidly and are conveyed from diseased animals to healthy ones by their bodies coming in contact with one another and by healthy animals rubbing against fences, walls, posts, etc., where mangy cattle have previously rubbed.

SYMPTOMS.—Scabs, loss of hair, intense itching, the

animals are constantly rubbing or licking themselves. The parts showing the first signs of Mange are those about the croup, or the root of the tail, the neck and withers, but as the disease progresses and no attempts are offered for its eradication, it finally spreads and covers the entire body. The scabs become ulcerated, the animal becomes weakened, emaciated and eventually dies.

TREATMENT.—Dipping in wood or concrete vats is the most satisfactory method of treating Mange. The regular lime and sulphur dip as recommended by the United States Bureau of Animal Industry is inexpensive and effective.

MEASLY BEEF.

It is produced by a larva of common tapeworm of man. These small tapeworm cysts (tænia saginata) are about the size of a pea and found in the flesh of cattle, which become infected by eating food or drinking water which has been contaminated by the feces of persons harboring adult tapeworms. Then again, the person becomes infected by eating raw or rare flesh of cattle infected with the larva stage of Measly Beef. Great care should be exercised to prevent cattle from becoming infested with this parasite. Persons' feces should not be placed where it will infect food or drinking water that is consumed by cattle.

MILK FEVER.

(*Parturient Apoplexy*)

CAUSE.—Certain conditions predispose cows to Milk Fever, as being heavy milk producers, cows having enormous digestive power and being heavily fed on nitrogenous food naturally are in a good condition, consequently at the time of calving, or shortly after, they are likely to develop a case of Milk Fever. It is more com-

mon during the summer months, although this condition may develop at any time of the year in the type of cow described above.

Symptoms.—At or a few days after calving, the cow is noticed hanging back in the stall, dull, languid, with an unsteady movement of the hind legs. If the cow is made to walk, she steps unsteadily or staggers, pays no attention to her calf; she finally becomes so paralyzed that she falls and is unable to rise. The pupils of the eyes are dilated and the membranes reddened or congested with blood. The cow may lie on her breast or flat on her side, but most likely upon her breast and her head turned in the region of the flank. She apparently is sound asleep. If the eyeball is touched with the fingers she does not close the eye, nor will she evince any pain when being pricked with a pin on any part of the body. The nose is dry, the temperature is below normal in most cases.

Treatment.—When the above signs are noticed, whether the cow is standing or lying down in a paralyzed condition, obtain an ordinary bulb injection syringe; insert a tube in the end from which the air escapes. After washing both syringe and teat tube in a five per cent solution of Carbolic Acid, milk or strip out all the milk possible from the bag, then insert the teat tube that is connected to the syringe in each teat, filling them well with air, and repeat this treatment every hour until the cow stops staggering, or if lying down, stands on her feet. It is necessary to strip the milk from the bag before giving an injection of air. If the cow is lying flat on her side, prop her up by placing bags of hay or straw against her side, also make her as comfortable as possible. If lying in the hot sun, provide shade by placing a canopy over her made from burlap; if the weather is chilly, blanket; if flies annoy her, use some fly repellant.

This disease is satisfactorily treated. Where ninety per cent of the cows died at one time, ninety per cent can be saved by the above treatment. It is a custom with

some people to use an ordinary bicycle pump for treatment of Milk Fever. This should not be practiced, as there is great danger of infecting the bag and producing serious complication.

Medical or After Treatment.—Never drench a cow. Give physic consisting of Aloin, two drams; Ginger, three drams. Place in a gelatin capsule and give with a capsule gun. Also, give tonics as Pulv. Gentian Root, two ounces; Pulv. Capsicum, one ounce; Pulv. Nux. Vomica, two ounces. Mix and place into eight gelatin capsules. Give one capsule every eight hours. This tonic is quite necessary, as it stimulates their appetite, braces up their nervous system and prevents any complications that might otherwise follow.

PARALYSIS.

(*Congestion of the Brain or Spinal Cord*)

Cause—May be due to a morbid condition of the brain or spinal cord, concussion of the spinal cord, fractures of the bones of the spinal column, or violent shocks or jars of the brain, or pressure due to fractures of the skull, or dilated or ruptured blood vessels. Paralysis also occurs in poorly fed, weak cows when exposed to cold or wet weather during the latter stages of pregnancy. Sometimes the back portion of the bowels (the rectum) becomes paralyzed so as to interfere with the expulsion of the feces which becomes dry and more or less impacted. This condition may also occur in connection with Ergot, Forage or Lead Poisoning, Milk Fever or Parturient Apoplexy.

Symptoms.—Appear very suddenly. The animal is unable to stand, lies quietly and groans occasionally. Constipation generally accompanies this condition. Sometimes great pain is present, especially if due to fracture or pressure, as above mentioned.

Treatment.—If just due to weakness; exposure to

cold, wet weather; cows prior to calving; slight injuries or mild effect of poisons, it is successfully treated by placing the animal in a comfortable, well lighted stall, omitting drafts, feeding nourishing food, as warm wheat bran mashes, steamed rolled oats or barley and linseed meal; tea to drink prepared as follows: Pour one quart of boiling water on one-half pint of Pure Flaxseed, allowing it to cool, compel the animal to drink it. Repeat this once or twice daily, especially if the animal is pregnant. A physic consisting of Aloin, two drams; Ginger, two drams; prepared in capsule and given with a capsule gun is very effective, but this, however, should not be administered to heavily pregnant cows. Endeavor to move their bowels by careful feeding of laxative food and rectal injections of soda and water. Nerve stimulants are necessary and I have derived good results from the following: Pulv. Nux Vomica, four ounces; Pulv. Ginger, four ounce; Pulv. Gentian Root, four ounces. Make into sixteen capsules and give one capsule every four to six hours. Also apply powdered mustard, moistened with a sufficient quantity of water to make a paste, and rub over the full length of the spine about eight inches in width. This should be covered with paper which will adhere readily to the mustard and water. This application can be repeated every twenty-four hours until satisfactory results have been obtained.

RED WATER.

(*Hematuria*)

Cause.—Marshy pastures, water from rich decomposed soil. Vegetation also has a tendency to produce it as cattle eating green shoots from oak, ash, hellebore, hazel and other resinous plants, etc.

Symptoms.—Bloody urine containing no blood clots. This condition is not noticed as a general rule until the cow loses flesh and the production of milk is considerably decreased. One particular symptom of this disease is

the milk being exceptionally foamy and perhaps tinged with blood. If the disease is left to run its course, the cow will become emaciated and eventually dies.

Treatment.—Find out the cause and remove it if possible. See that the water supply is clean, feed nitrogenous food, as wheat bran mashes or steamed rolled oats. Do not permit the animal to eat resinous plants as stated above.

Administer Pulv. Gentian Root, four ounces; Pulv. Nux Vomica, four ounces; Pulv. Ferri Sulphate, four ounces. Mix and make into sixteen capsules and give one capsule two or three times a day with capsule gun. If the animal is constipated, give two drams of Aloin, three drams of Ginger. Place in capsule and give with capsule gun.

RETAINED AFTERBIRTH.

Cause.—Retained afterbirth may follow normal or abnormal calving where there has been more or less inflammation of the womb prior to giving birth, which causes the afterbirth to adhere firmly to its attachments. Cows in poor condition fed on poor food during cold weather are very susceptible to this accident; also very common in aged cows.

Symptoms.—Very easily detected by portions of the membranes (afterbirth) protruding from the Womb or Vulva, which becomes decomposed very shortly and offensive in odor. This accident is very serious when absorption is produced, ill health, drying up of the milk in addition to producing inflammation of the womb, Whites, etc. It may produce blood-poisoning and chances are you will lose your animal.

Prevention.—Very important. Feed the cow on food that is easily digested and supply her with fresh water to drink that is not too cold. Flaxseed Tea is very beneficial if given a day or so prior to calving and is

prepared by pouring a quart of boiling hot water on one-half pint of Flaxseed, permitting it to cool of its own accord. Then compel the animal to drink it. This appears to have a very good effect on separating the afterbirth from the mushroom-like bodies of the womb to which it is attached.

Medical Treatment.—The afterbirth should not be pulled away by force, as it may tear, leaving small portions unremoved that perhaps would result in Inflammation of the Womb or Whites. To remove the afterbirth insert the hand and carefully detach it from its attachments, being very careful that the coyledons are not torn off. After this has been carefully removed, wash out the womb with Carbolic Acid solution about two and one-half per cent. An instrument can be made for this purpose very easily from a clean piece of hose about four feet long and an ordinary funnel. Sometimes it is necessary to give physics, as Aloin, two drams; Ginger, two drams. Place in a gelatin capsule and give with a capsule gun.

In addition to the above, stimulants are also advisable such as powdered Nux Vomica, powdered Capsicum, powdered Ginger, powdered Nitrate of Potash, equal parts four ounces. Make twenty-four capsules and give one capsule three times a day.

RHEUMATISM.

Cause.—Exposure, especially when the animal is permitted to lie on cold damp soils or floors. Another common cause is an animal exposed to cold drafts after perspiring or weakened after severe physical exercise.

Symptom.—Stiffness when walking, variable appetite, constipation, hair unthrifty looking. Passage of urine is scant and of an amber color, usually slight elevation in temperature and the animal lies down a great part of the time. There are two forms of rheumatism—muscular and articular. The former affects the muscles

of the body, while the latter affects the joints. There will be swellings that are tender on pressure, which may shift to different parts of the body.

Treatment.—Place the animal in warm dry quarters with a sufficient quantity of clean bedding. Feed foods that are easily digested, as wheat bran mashes and steamed rolled oats and vegetables. Keep pure, cold water within the animal's reach at all times. The following prescription has been found very effective in the treatment of this disease: Sodium Salicylate, six ounces; Nux Vomica, two ounces; Pulv. Gentian Root, two ounces; Nitrate of Potash, two ounces. Mix and make into sixteen capsules and give one capsule three times daily with capsule gun. If the bowels are constipated give Aloin, two drams; Ginger, three drams. Place in capsule and give with capsule gun. When the joints or muscles become swollen and inflammed, the following liniment will be found very effective in reducing the swellings: Aqua Ammonia Fort., two ounces; Oil of Turpentine, three ounces; Sweet Oil, six ounces. Mix and apply by rubbing in well two or three times a day.

RINGWORM.

Cause.—Due to a vegetable parasite. It affects the hair and the outer layer of skin and is highly infectious, being transmitted from one animal to another.

Symptoms.—The disease usually appears in the form of circular patches of the skin, which soon become denuded of hair. Sometimes a white sticky discharge and the formation of scaly, brittle crusts on the patches appear, silvery gray in color. They are generally confined to the head and neck. It is a common disease among young cattle in the Winter and Spring. This disease is attended with more or less itching and is communicable to man.

Treatment.—Remove the scabs or crusts with soap and warm water. However, the surface of the body

should be well dried after washing each time. Apply Tincture of Iodine with a camel-hair brush to the spots denuded of hair. It is quite necessary that the barn and rubbing posts be disinfected by spraying or washing them with a twenty-five per cent solution of Carbolic Acid.

ROUND WORM.

Cause.—An animal swallowing the eggs of the parasite in food or water which has been contaminated with the feces of infected cattle. There are two species, the large Roundworm measuring from five to fourteen inches in length, the small Roundworm varying in size from one-quarter of an inch to two inches in length. Both the small and large Roundworms infest the intestines of cattle and calves. These worms, especially small Roundworms, irritate the mucous lining of the intestines, which may cause severe inflammation.

Symptoms.—Anemia, appetite variable, diarrhoea, general weakness, dullness and excessive thirst; also a paleness of the visible membranes of the mouth, nose and eye. Worms frequently pass with the feces and can be readily seen by a close observer.

Preventive Treatment. — See prevention of Twisted Stomach Worm.

Medical Treatment.—Withhold all food from eighteen to twenty-four hours. To calves, two to eight months old, give two teaspoonfuls of Turpentine in a pint of milk; to yearlings, give one tablespoonful. Place in gelatin capsule and give with capsule gun. To cattle one year old and over place one ounce in a gelatin capsule and give with capsule gun. This treatment is to be repeated twice during the intervals of ten days or two weeks, which insures the expulsion of the eggs of worms that escaped the first treatment. Also keep salt where cattle can lick frequently.

RUPTURE.

(*Abdominal Hernia*)

Cause.—This disease occasionally occurs in calves by receiving blows from the cow's horns on the right flank. After such an accident a swelling forms near the last ribs. This swelling may be either hot and painful or soft to the touch. It can be made to disappear by careful pressure when the sides of the rupture through which it has passed can be felt. On removing the pressure the rupture soon regains its swollen appearance. Similar conditions may also occur in aged cattle, usually due to injuries, such as being kicked by a horse, etc., or due to a weakness of the muscles that are ruptured sometimes during difficult birth.

Treatment.—Feed the animal on laxative food and feed sparingly on bulky food such as hay, straw and grass. Round the edges of a block of wood a little smaller, but the same shape as the rupture. After wrapping with cloth nicely, place it over the rupture, then place bandage around the body. This permits the ruptured muscles to grow together, providing the animal is properly dieted as stated above.

Sometimes a rupture of long standing or a newly produced rupture may be treated by injecting strong solutions of Common Salt around the torn edges of the muscles. This causes the swelling and inflammation, which respectively forces the protruded intestines back and closes the opening. There is some danger attached to this method of treatment, and if attempted I would advise that great care be exercised.

SCUM OVER THE EYE.

Cause.—See Inflammation of the Eye.

Symptoms.—The eye has a smoke-colored appearance.

TREATMENT.—Silver Nitrate, two grains, thoroughly dissolved in one ounce of Distilled Water. Apply with dropper two or three times a day. Feed the animal on food that is easily digested and confine the animal to a cool, clean, dark stall.

SORE THROAT.

(*Laryngitis and Pharyngitis*)

CAUSE.—Sudden cooling of the surface of the body, as when cattle are exposed to cold weather or cold rain or the inhaling of irritating gases.

SYMPTOMS.—The muzzle is dry, temperature slightly elevated and saliva dribbles from the corners of the mouth. The animal either does not swallow, or swallows with great difficulty, and holds its head in a stiff, straight position, moving it as little as possible. The eyelids are half-closed and bloodshot, and the animal occasionally grinds the teeth. After masticating the food the animal drops it out of its mouth as if to avoid the pain of swallowing, and also evinces great pain when pressure is applied from the outside. In acute attacks of sore throat, the animal coughs with great difficulty and breathes very noisily. The nostrils are dilated and nose extended.

TREATMENT.—Place the animal in as comfortable a place as possible, permitting plenty of fresh air, but avoid ing drafts. Blanket the animal if the weather is chilly, also hand rub the legs and bandage with woolen cloths.

Administer Chlorate of Potash, two ounces; Nitrate of Potash, two ounces; Tannic Acid, one-half ounce; Molasses, eight ounces. Mix well and place one tablespoonful on the tongue every three or four hours. Feed soft food, as wheat bran mashes and steamed rolled oats, or boiled vegetables. Give drinking water with the chill taken off.

It is always necessary to apply liniments to the

throat, and I would advise the application of Aqua Ammonia Fort., four ounces; Oil of Turpentine, four ounces, and Sweet Oil, four ounces. Apply and rub in well two or three times a day.

STRINGY MILK.

Cause.—Cows wading or standing in stagnant pools of water. Frequently stringy milk results from fungi entering the udder. This takes on an infectious form, and several cows may become affected at one time.

Symptoms.—Although the milk appear perfectly normal when first milked, it becomes stringy after standing for a few hours. If a needle is inserted in the milk and slowly withdrawn, the milk will adhere to the point and have a stringy appearance. If the cow is examined carefully, the temperature will be found to be elevated a degree or two, the appetite poor and the nose dry.

Treatment.—Feed laxative food and see that they have fresh water to drink. Also place two drams of Soda Bisulphite once or twice a day in a gelatin capsule and give with capsule gun. Do not permit the cow to come in contact with stagnant pools of water that carry this infection. Perhaps the best plan is to fence out all such stagnant pools of water.

SUPPRESSION OF MILK.

(*Absence of Milk*)

Cause.—Usually due to poor health, debility, emaciated, chronic disease of the bag, or wasting of its glands from various diseases or impure food. Sometimes this condition is produced without any apparent cause.

Treatment.—Determine the cause, if possible, and remove it. Feed warm wheat bran mashes, steamed

rolled oats or barley. Administer Pulv. Anise Seed, one-half ounce, two or three times a day. This has a very good effect in this particular condition. Also rub the bag and strip the teats often, and apply Oil of Lavender. The majority of cases respond to this treatment if not due to chronic disease of the bag.

TAPEWORM.

Cause.—Small portions of tapeworms, consisting of one or more segments, are occasionally seen in the droppings of infected cattle. The infection is undoubtedly taken in with the food or water, infection being spread by the eggs of the parasite, and being expelled with the feces of an infected animal. The eggs being swallowed by insects, worms or snails, which act as an intermediate host, and which when swallowed accidentally by cattle while grazing or drinking carry with them into the animal's stomach the infectious stage of the tapeworm. Aged cattle do not seem to suffer much from tapeworms, but in calves these parasites cause scours and rapid emaciation.

Symptoms.—Emaciation, diarrhoea, loss of flesh, ravenous appetite, paleness of the mucous membranes of the mouth and eyes, and the segments of the tapeworms can occasionally be seen in the droppings.

Treatment.—Withhold all food from eighteen to twenty-four hours, and to calves from two to eight months old give two teaspoonfuls of gasolene in a pint of milk. To yearlings, place one tablespoonful in a gelatin capsule and give with capsule gun. To cattle one year and over, place one ounce in capsule and give with capsule gun. Repeat this treatment two or three times during intervals of a week or two.

TEXAS FEVER.

Cause.—Due to a micro organism (Pirophalasna Bigenium) which imbeds itself in the red blood corpuscles.

This disease is transmitted or scattered by means of a tick which drops from the affected animal. The disease has various names, according to the locality in which it appears. Among them are: Spanish Fever, Red Water, Black Water, Red Murrian, Australian Cattle Tick Fever, etc.

Symptoms.—Loss of appetite. The animal ceases to ruminate or does not chew the cud, and every sign of unthriftiness is displayed; a high temperature, and when the animal is standing the back is arched, but the animal however, prefers to lie down most of the time and shows desire for solitude. The urine is very dark in color, hence the name "Red or Black Water." The disease is usually fatal, the animal dies within a few weeks.

Treatment.—My advice is, when this disease once develops, or an animal shows any of the particular signs that I have mentioned, examine carefully and immunize by the use of serums, disinfectants, etc.

TICKS.

Ticks are very difficult to kill, on account of their protected location, as ear ticks are not affected by dipping, and remedies strong enough for this purpose are liable to injure the animal, but these parasites may be expelled by pouring into the ear Carbolated Cottonseed Oil with favorable results.

TUBERCULOSIS.

Cause.—The bacilli of Tuberculosis thrive in animals, especially those in a weakened condition, or when exposed to atmospheric changes, unwholesome food, dark and poorly ventilated stables. They gain entrance into the body through the lungs or the intestinal canal. They lodge in various portions of the lungs or intestines, and multiply very rapidly, causing irritations and formations, nodules, cysts or abcesses. They are the means

of the bacillus entering the blood, which carries the infection to other parts of the body, as the spleen, liver, udder, womb, etc. Cows affected with generalized tuberculosis, that is to say the infection being confined to not only a small portion of the lungs, but also to any of the above mentioned organs, etc., may give birth to a calf having general tuberculosis at birth, or shortly after, due to the cow's blood circulating through the body of the calf before birth.

Symptoms.—This disease may pass a casual observer unnoticed, although in some instances we notice a slight cough, unthriftiness, dullness. The coughing is best marked after taking a drink of water in the morning and then being exercised. Some animals keep up in good condition and look perfectly healthy while some get emaciated, have constipation, variable appetite, and sometimes growths or abcesses can be felt or seen in the udder or glands of the body and neck.

However, cattle showing any weakness, or the above symptoms should be tested for tuberculosis by the administration of tuberculin.

Treatment.—It is not advisable to treat tuberculosis. Thus far, medicine has failed to relieve the affected animal, or kill the bacillus of tuberculosis in a living animal. The infected animals should be disposed of on account of tubercular cows giving birth to tubercular calves, the milk being unfit for human consumption, unless it is thoroughly pasteurized. Infected cattle should be separated from healthy ones, as the disease spreads very rapidly. Drinking and feeding troughs are a means of spreading the infection, therefore, suspected cases of tuberculosis should be tested and if the animals react, they should be slaughtered, and if the disease is localized, passed for human consumption. The meat of animals suspected of having tuberculosis, or reacting from tuberculin test, should be well cooked.

TWISTED STOMACH WORM.

Cause.—Cattle become affected with this worm by grazing in pastures in which infected cattle have grazed and scattered their droppings. The worms in the stomach produce a multitude of eggs of microscopic size, which pass out of the body with the feces. In warm weather, these eggs hatch in a few hours; if the temperature remains about freezing point, they soon die. The eggs are also destroyed by dryness, but, on the other hand, moisture, if the weather is warm, favors their development. The twisted worm measures one-half inch to one and one-half inches in length.

Symptoms.—General weakness, loss of flesh, anemia, dullness, capricious appetite, excessive thirst, paleness of the skin and mucous membranes of the mouth and eyes, and dropsical swelling, especially that of the lower jaw. Diarrhœa always accompanies this condition and if the feces is carefully examined the small worms may be seen wriggling about like little snakes, or when the animal dies, and the fourth stomach is opened, these worms can be seen in large quantities.

Treatment.—Preventative measures are important, as damp, marshy soil favors the development of the embryos. High sloping ground is preferable for pasture. If low ground is used it should be properly drained; burning over the pasture will destroy most of the young worms on the grass and on the ground. Cattle should be supplied with water from flowing streams or wells and not stagnant ponds.

Medical Treatment.—Withhold all food for twenty-four hours, then administer Oil of Turpentine, placing it in an ounce capsule and give with capsule gun. Follow in six hours with a physic consisting of Aloin, two drams; Ginger, two drams. Place in capsule and give with capsule gun. When this worm develops in calves, give as follows: One dram Turpentine to a calf

three months old, four drams to a calf six months old, six drams to a yearling. To cattle two years and over, give equivalent dose, or an ounce. The physic should be reduced in the same proportions as that of Turpentine.

VERMINOUS BRONCHITIS.

(*Lung Worms*)

CAUSE.—Due to worm or parasite called Strongylus Micrurus, a small thread-like worm two to four inches in length, found in the bronchial tubes, a portion of the lungs. The life history of this parasite is not known, but infection is apparently derived through the medium of pastures where infested cattle have grazed. Young cattle are more seriously affected than old animals. These parasites are especially common in low marshy pastures.

SYMPTOMS.—This form of bronchitis usually affects the entire herd; the animals become poor, unthrifty, hacking, coughing, especially at night, and sometimes animals actually cough up worms.

TREATMENT.—Various treatments have been recommended for Verminous Bronchitis, or Lung Worm, as injecting Turpentine into the windpipe or fumigating animals by placing them in a closed shed or barn and burning sulphur, compelling the affected animals to inhale the fumes. This treatment perhaps is the safest and the most effective. A person should remain in the enclosed shed and when the fumes become so strong that there is danger of suffocation, open the doors and windows. This treatment should be repeated every week until coughing ceases.

WARBLES OR GRUBS.

CAUSE.—By the heel-fly or warble-fly. They deposit their eggs on the legs of cattle during the fall. The animal, licking the parts, takes the eggs into its mouth. These eggs gradually migrate into the gullet, where they

hatch and burrow through the tissues, and in the early spring will be found in the region of the back in the form of small lumps under the skin.

Symptoms.—Warbles are frequently seen under the skin in the region of the back and over the loins, and are very tender to the touch. When they are fully developed they work their way through the skin, which usually occurs in the early part of the summer. Examine your cattle in the winter and spring for the presence of grubs. They can be easily found by running the hand over the loins, by abrupt swellings or bunches on the skin. Pressure on the swelling will perhaps cause the grubs to pop out.

Treatment.—Remove the grubs by making a small incision with a clean, sharp knife in the center of the swelling. Then press them out and into each cavity from which the grub has been extracted, or squeezed out, should be injected a five per cent solution of Carbolized Sweet Oil to prevent any further development of flies or grubs. Cattle sprayed with fly repellants during the spring and summer are very seldom bothered with warbles or grubs. However, this is not practical in range cattle; dipping instead should be resorted to, and it is surprising what results will be derived from fly repellants in a year or two. They will practically exterminate the pest, and consequently the cattle are thrifty and look much better.

WARTS.

Cause.—Warts may appear on various parts of the body, and are due to an abnormal growth of cells growing upon the outer surface of healthy skin, or they may grow upon skin that is deprived of the proper blood supply.

Treatment.—If the wart is located where there is hair surrounding it, cut away the hair, then wash the

wart and surrounding parts with a five per cent solution of Carbolic Acid and clip the wart off with a sharp pair of scissors or knife. After the wart is removed, cauterize the cut surface with a hot iron. Caustic Potash or Silver Nitrate should be applied two or three times at the intervals of two or three days to insure the entire extermination of the wart. This treatment applies to all classes of warts located in various places.

WHITES.

(*Leucorrhea*)

Cause.—Continual chronic inflammation of the womb, or due to irritations from a retained afterbirth. Injuries or wounds inflicted by hands or instruments in difficult calving, diseases of the ovaries, etc.

Symptoms.—A glarish, white discharge from the womb. When cow is lying down it flows more abundantly, soiling the tail, etc. The general health may not be much affected at first, but if the discharge continues and is putrid, the health fails, the milk shrinks, and there is a great loss of flesh. In some cases heat is more frequent or intense than natural, but the animal rarely conceives when served, and if she does, is likely to abort.

Treatment.—Feed nitrogenous food. Wash the womb out with a solution consisting of five grains of Permanganate of Potash to one quart of water. This should be repeated once or twice a day. If the animal is constipated, give two drams of Aloin, three drams of Ginger. Place in gelatin capsule and give with capsule gun. Also place Potassium Iodide one dram, Hyposulphite of Soda one ounce in the drinking water two or three times a day. This not only diminishes the discharge, but has a good effect on the blood, particularly where there is more or less decomposition of the flesh.

WOLF IN THE TAIL.

This condition is imaginary, although the muscles of the tail relax or soften, especially those of its extremity, due to ill health; consequently the condition of the cow should be treated, and not the tail.

Treatment.—Remove the cause. Perhaps the animal has indigestion, or a cold, etc. Determine the malady by careful examination and treat the disease under its special heading.

It has been the custom among the so-called cow doctors to split the tail with a sharp knife, then fill the wound with salt and pepper and bandage with a cloth. This is a fallacy, and should not be practiced.

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